



Short report

Suicidal ideation among medical students of Pakistan: A cross-sectional study



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ABSTRACT

Few studies have investigated suicidal ideation among medical students in the developing world. We found only one report on suicidal ideation among medical students in Pakistan published in the year 2005. The present cross-sectional survey on suicidal ideation conducted in July 2013 involved 331 medical students of Dow University of Health Sciences, Karachi, Pakistan. In the past one year, suicidal ideation was found in 118 (35.6%) students. Forty-six (13.9%) of all the students had made a plan in their life time to commit suicide while 16 (4.8%) of the 331 students tried to commit suicide at some point of time in their life. More females than males pondered suicide while first year medical students formed the majority of those with suicidal ideation. The single greatest risk factor predisposing to suicidal ideation was substance abuse. This was followed jointly by parental neglect and previous psychiatric disorder. Campaigns against substance abuse and counseling of vulnerable students will help in eradicating suicidal intent.

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1. Introduction

Suicide is the act of intentionally causing one's own death.¹ This act results from a complex interaction of biological, psychological, sociological, cultural and environmental factors.² This disastrous action has significant effect on global burden of disease, contributing yearly to 1.4% of the total burden with foremost role played by people aged between 15 and 35 years.³ Studies have demonstrated that, yearly, more people die by suicide than by violent conflicts.²

It's not possible to commit suicide without any prior ideation.⁴ According to Joe et al. 50% of planned suicidal attempts occur within one year of suicidal ideation.⁵ The range of ideation varies greatly from fleeting to detailed planning, from role playing to unsuccessful attempts. The greatest risk factor of suicidal ideation is stress which consequently leads to depression. It is also associated with pre-existing psychiatric disorders and disturbing life events.

Considering the risk factors, medical students seem extremely vulnerable to suicidal ideation because of overwhelming stress put

by curricular and non-curricular issues.^{6,7} A range of studies have depicted that the degree of stress among medical students is higher than their counter parts studying other courses and consequently medical students have an increased frequency of depression and suicidal ideation.^{7–10}

A number of studies regarding suicidal ideation among medical students have been carried out in the developed world, but this topic has largely been ignored in developing countries like Pakistan, Nepal and India. This is unfortunate as medical students in this region are not only overburdened by their educational issues but most also face the problems associated with being born and bred in less privileged backgrounds which would possibly potentiate the degree of stress upon their minds and subsequently suicidal ideation.¹¹

In Pakistan, with the exception of a solitary study published in 2005, no research has been thereafter conducted on suicidal ideation among medical students.¹² Treated as a taboo, this problem has never been suitably discussed. Such attitude is deplorable as it only leads to inattention of the vulnerable and furthers the assembly of suicidal ideation and the rate of suicide.

In order to address this issue, we conducted a study aiming to assess the prevalence of suicidal ideation among the present

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Pakistani medical students and identify the risk factors drawing them towards suicidal ideation.

2. Materials and methods

The participants in the present research were undergraduate medical students of the three medical institutes namely, Dow Medical College (DMC), Sindh Medical College (SMC) and Dow International Medical College (DIMC), affiliated with Dow University of Health Sciences (DUHS), Pakistan. A cross-sectional survey was conducted in July 2013 with a sample size of 331 participants. The study sample was rather equally distributed among the three institutes with the smallest share being from DIMC. Stratified convenience sampling was the sampling technique employed.

The inclusion criteria consisted of undergraduate medical students studying the MBBS (Bachelor of Medicine and Bachelor of Surgery) course, while house-officers, residents and consultants were excluded. Overall the response rate was quite high, i.e. 97%, with 331 out of the possible 341 questionnaires returned.

The questionnaire was adopted from an earlier study conducted in Pakistan by Khokher and Khan.¹² The questionnaire was elaborated and modified as per the aims of the present research study. The questionnaire consisted of five parts. The first part recorded socio-demographic characteristics like age, gender, religion, year of study, residence, family type.

The second part comprised of a set of nine questions related to parental neglect, expectations from parents, academic performance, smoking, substance abuse, ragging, assault, relationships, and psychiatric disorder. All of these questions had a dichotomous (yes/no) response format except for the question pertaining to relationships which had a trichotomous response format.

Four questions which measured suicidal ideation in the past one year formed the third part of the questionnaire. The answers to these four questions were scored on a Likert-type scale, with the last two response options for these four questions taken as a positive response and the subject was considered to have suicidal ideation. The four questions asked were:

- "Have you recently (in the past one year) felt that life is not worth living?"
- "Have you recently (in the past one year) found yourself wishing that you were dead and away from it all?"
- "Have you recently (in the past one year) had thoughts of the possibility that you might do away with yourself?"
- "Have you recently (in the past one year) found that the idea of taking your own life kept coming into your mind?"

The first two aforementioned questions had the response options of: (a) *not at all*, (b) *no more than usual*, (c) *rather more than usual*, (d) *much more than usual* whilst the last two aforementioned questions had the options of: (a) *definitely not*, (b) *I don't think so*, (c) *has crossed my mind*, (d) *definitely has*.

The fourth part of the questionnaire comprised of two questions with a dichotomous (yes/no) response format related to the life-time prevalence of suicidal plan and suicidal attempt. These two questions were:

- "Have you ever made a plan to kill yourself?"
- "Have you ever tried to kill yourself?"

The last part of the questionnaire was an open ended question inquiring about the reasons, besides the ones already listed in the questionnaire, for considering suicidal behavior.

Before the actual research was carried out, a pilot study was done using the questionnaire in English distributed to 10 students

as per convenience. None of the 10 students had any problems in either understanding or answering any of the questions. Later on a random college day in July 2013 the actual research was conducted simultaneously in all the three medical colleges affiliated with DUHS. On the said day, data collectors distributed questionnaires among students sitting in the library or the canteen of each college. Confidentiality and anonymity were ensured at all times, during the data collection stage.

The data were entered into SPSS, version 20, statistical analysis program (SPSS, Inc., Chicago, IL, USA) and analyzed. Missing values were excluded from data analysis. Chi square test was applied to find *p*-values while the odds ratio was determined using logistic regression.

3. Results

A total of 331 medical students participated in the present study. They were aged between 18 and 29 years with mean age of 20.73 (± 1.70). Out of the 331 participants, 135 were males (41.2%) and 193 were females (58.8%). The mass majority of the students were Muslims 321 (98.2%) and only 6 (2%) were non-Muslims. One hundred and thirty-seven students (41.4%) belonged to DMC, 107 (32.3%) to SMC, and 87 (26.3%) to DIMC. Seventy-eight (24.8%) of the students were in the first year of the medical curriculum, 87 (27.7%) in the second year, 78 (24.8%) in the third year, 28 (8.9%) in the fourth year, and 43 (13.7%) students were in the fifth year. Socio-demographic characteristics are presented in Table 1.

In the past one year, suicidal ideation was found in 118 (35.6%) students. Forty-six (13.9%) of all the students had made a plan during their life time to commit suicide while 16 (4.8%) of the 331 students tried to commit suicide at some point of time in their life.

Table 1
Socio-demographic profile of the students.

Variable	N	(%)
Institute (missing response = 0)		
Dow Medical College	137	41.4
Sindh Medical College	107	32.3
Dow International Medical College	87	26.3
Gender (missing response = 3)		
Male	135	41.2
Female	193	58.8
Age (missing response = 30)		
18	17	5.6
19	55	18.3
20	88	29.2
21	53	17.6
22	38	12.6
23	32	10.6
24	12	4.0
25+	6	2.0
Religion (missing response = 4)		
Islam	321	98.2
Christianity	3	0.9
Hinduism	2	0.6
Other	1	0.3
Year of study (missing response = 17)		
First year	78	24.8
Second year	87	27.7
Third year	78	24.8
Fourth year	28	8.9
Fifth year	43	13.7
Residence (missing response = 3)		
Home with parents	299	91.2
On campus hostel	25	7.6
Off campus rented home	4	1.2
Family type (missing response = 0)		
Dual parent	303	92.4
Single parent	23	7.0
Step parent	2	0.6

Out of the 118 students who had suicidal ideation, 42 (35.6%) were males and 76 (64.4%) were females. Thirty-four (30.1%) of these 118 students belonged to the first year, 22 (19.5%) to the second year, 27 (23.9%) to the third year, 9 (8.0%) to the fourth year and 21 (18.6%) to the fifth year of the medical curriculum.

There was a statistically significant association of parental neglect (p -value 0.000), demanding parents (p -value 0.000), dissatisfaction with college (p -value 0.000), smoking (p -value 0.003), substance abuse (p -value 0.001), ragging (p -value 0.036), being assaulted (p -value 0.002), relationship breakups (p -value 0.029), stable relationships (p -value 0.011), and psychiatric disorder (p -value 0.000) with suicidal ideation.

As presented in Table 2, the common factors for suicidal ideation were demanding parents (p value 0.000, OR 2.363, 95% CI = 1.489, 3.750) and dissatisfaction with college life (p -value 0.000, OR = 2.605, 95% CI = 1.636, 4.147) though the odds of developing suicidal ideation after experiencing any one of these factors was less than 3.

The most striking result was that there was more than 28 times higher risk of developing suicidal ideation in students who indulged in substance abuse (p -value 0.001, 95% CI 3.703, 220.118). There was about four times greater risk of developing suicidal ideation in students who were neglected by their parents (p -value 0.000, 95% CI 1.906, 8.023) and those who had a psychiatric disorder (p -value 0.000, 95% CI 1.868, 9.201). As shown in Table 2, the odds of developing suicidal ideation among students who smoked (p -value 0.003, 95% CI 1.485, 6.821), and those who were ragged (p -value 0.036, 95% CI = 1.060, 5.895) were 3.183 and 2.50, respectively.

Table 2
Multiple logistic regression for suicidal ideation.

Variables	Percentage	P-value	Odds ratio	95% CL
Parental neglect (missing response = 4)				
Yes (<i>N</i> = 37)	11.3	0.000	3.911	(1.906, 8.023)
No (<i>N</i> = 290)	88.7			
Demanding parents (missing response = 4)				
Yes (<i>N</i> = 143)	43.7	0.000	2.363	(1.489, 3.750)
No (<i>N</i> = 184)	56.3			
Dissatisfied with college (missing response = 4)				
Yes (<i>N</i> = 156)	47.7	0.000	2.605	(1.636, 4.147)
No (<i>N</i> = 171)	52.3			
Smoking (missing response = 5)				
Yes (<i>N</i> = 31)	9.5	0.003	3.183	(1.485, 6.821)
No (<i>N</i> = 295)	90.5			
Substance abuse (missing response = 6)				
Yes (<i>N</i> = 15)	4.6	0.001	28.549	(3.703, 220.118)
No (<i>N</i> = 310)	95.4			
Ragging (missing response = 4)				
Yes (<i>N</i> = 23)	7.0	0.036	2.500	(1.060, 5.895)
No (<i>N</i> = 304)	93.0			
Assault (missing response = 3)				
Yes (<i>N</i> = 26)	7.9	0.002	3.759	(1.619, 8.730)
No (<i>N</i> = 302)	92.1			
Breakup (missing response = 8)				
Yes (<i>N</i> = 64)	19.8	0.029	2.090	(1.182, 3.695)
No, our relationship is fine (<i>N</i> = 52)	16.1	0.011		
No, never involved in relationships (<i>N</i> = 207)	64.1	0.825		
Psychiatric disorder (missing response = 6)				
Yes (<i>N</i> = 30)	9.2	0.000	4.146	(1.868, 9.201)
No (<i>N</i> = 295)	90.8			

Students pointed out numerous reasons for considering suicide in the open-ended question. These reasons could be broadly classified into four categories namely study related, family related, friends related, and self-related. The majority of students mentioned study related reasons. Study related reasons revolved around poor performance in exams and the increased work load in the medical college. Among the reasons related to family, they were about disputes within the family and suicide committed by relatives. Self-related reasons usually dealt with difficulty in getting married, abandonment issues, general disillusionment with life, suffering from a severe illness, mental condition, low self-esteem, and inability to remain involved in a healthy relationship. Other reasons which could not be categorized were curiosity to see what the hereafter looked like and to attract the attention of people.

4. Discussion

Our results demonstrate that 35.6% of medical students in Pakistan had considered suicide in the past one year while 4.8% had attempted suicide in their lifetime. These results are quite remarkable when compared to findings reported from Norway, USA, and Turkey. In contrast to our results, Tyssen et al. found that the yearly prevalence of suicidal ideation among Norwegian medical students was 14% and only 1.4% had attempted suicide in their lifetime, while Dyrbye et al. found that only 11.2% American medical students had thought about suicide in the past one year.^{13,14}

However, our results are consistent with findings reported in other studies that have shown Pakistani medical students to be extremely stressed. Khan et al. and Jadoon et al. have demonstrated that Pakistani medical students have high rates of depression and anxiety that can reach upto 70%.^{15,16} Our research validates their findings and shows that such large rates of anxiety and depression translates to high rates of suicide ideation.

The prevalence of suicidal ideation was higher in females when compared with males. This finding is consistent with the known increased risk of suicidal ideation as well as suicide completion in female physicians and is easily explained by increased susceptibility of female medical students to depression as compared to their male counterparts.^{7,17,18}

Our research investigated the major causes of suicidal ideation by exploring the risk associated with establishing suicidal ideation after exposure to a designated “cause”. We discovered substance abuse, previous psychiatric disorder and parental neglect to be the most important contributors in developing suicidal ideation among medical students.

There was a 28 times higher risk of developing suicidal proneness in students who indulged in substance abuse. This is in agreement with research showing substance abuse to be a significant risk factor for suicide.^{19,20} Research shows that substance abuse results in impaired verbal intellectual ability and inefficient psychomotor processing and consequently more problematic behavior.^{21,22} This may increase the viability of suicide as one's ability to effectively solve problems is diminished. Therefore, it is strongly recommended that universities and colleges should carry out concerted efforts in eradicating substance abuse.

Parental neglect causes children to grow up without the inner resources that everyone needs to cope with difficult times. They become vulnerable to anyone who gives them attention and are at increased risk of being exploited.²³ This extrapolates that parental neglect is a significant risk factor for suicidal ideation as found in the present study and that by Brown et al.²⁴

It is an established fact that more than 90 percent of people who die from suicide have a diagnosable mental disorder with an estimated 2–15% of individuals diagnosed with major depression dying by suicide.^{25,26} Therefore, our finding that medical students

with pre-existing psychiatric disorder are four times more likely to think about suicide than normal individuals is not only correct but expected. For that reason the authors feel that students suffering from either parental neglect or any psychiatric disorder should be identified and counseled/treated accordingly.

The cross-sectional nature of this study was its main limitation. Hence, we were only able to report associations rather than definitive temporal or causal relationships. Secondly, our sample consists of students from a public university which may limit the generalizability of our results. Similar studies need to be performed on larger and more diverse samples throughout Pakistan. Methodology, otherwise, is the strongest point of the study as it employs an adequate sample size.

Medical students are an asset of developing countries and need to be protected from preventable causes of morbidity and mortality, suicide being one of them. There is a need for the medical community to recognize this and plan accordingly. Drives against substance abuse, counseling of vulnerable students and easing the so called “pressure-cooker” environment in medical colleges will go a long way in eradicating the formation of suicidal ideation.

Ethical approval

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Conflict of interest

None.

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